**Post-Doctoral Research Associate (Electron Microscopy and Machine Learning)**

**Harwell Science and Innovation Campus, Oxfordshire**

**Salary £33,963 to £39,955 per annum, dependent upon skills and experience**

**Full time / Flexible hours considered.**

**18 Months fixed term**

**About Us**

Diamond Light Source is the UK’s national synchrotron facility. By accelerating electrons to near light-speed, Diamond generates brilliant beams of light from infra-red to X-rays which are used for both academic and industrial research, across a wide range of scientific disciplines including structural biology, physics, chemistry, materials science, engineering, earth and environmental sciences.

The electron Physical Science Imaging Centre (ePSIC) is a national facility for aberration corrected electron microscopy. ePSIC was established as a collaboration between Johnson Matthey, the University of Oxford and Diamond Light Source. We provide access to two state of the art aberration-corrected transmission electron microscopes for users from across the UK and other countries.

**About the Role**

We have an opportunity for a Post-Doctoral Research Associate to join the ePSIC team and contribute to the continued success of our world-leading facility. In this role, you will conduct a project using machine learning to extract information from images of atomic clusters. Specifically, you will:

* Acquire atomic resolution images of metallic atomic clusters using an aberration corrected electron microscope.
* Construct and train a convolutional neural network to classify the structure of clusters from acquired images.
* Apply the neural network to in-situ videos of Pt clusters under heating to determine the relative energies of different structures.
* Liaise with external collaborators to produce samples and to ensure that developed workflows can be implemented in both academic and commercial settings.
* Publish the results of the project in high-impact journals and present at international conferences.

The project offers an opportunity to work with both academic (Swansea University) and industrial partners (Johnson Matthey) in a highly topical research field.

**About You**

You will have a PhD in a physical science (materials science, physics or similar), ideally in electron microscopy or a related field.

You will have experience in using an appropriate programming language (Python, MATLAB or similar) to analyse images. It is desirable that you also have some experience of applying machine learning (in particular neural networks) to analyse scientific data.

The ideal candidate will have experience in the operation of transmission electron microscopes. It is also desirable that you have experience in aberration corrected electron microscopy and use of in-situ holders for heating experiments. We will also consider candidates who have used machine learning to analyse images from other fields (e.g. other microscopic techniques, astronomy etc).

You will display the ability to design, plan, organise and implement projects and tasks within an allotted timeframe, as well as the ability to lead your own research project including resource management.

You will display good interpersonal, communication and presentational skills to interact with a range of colleagues and stakeholders.

**Benefits**

Diamond offers an exceptional benefits package to support staff in achieving a positive work/life balance. This includes 25 days annual leave plus 13 days of statutory and company holidays, along with flexible working hours and an excellent pension scheme. Staff also have access to a range of amenities on site including a nursery, cafes, a restaurant and sports and leisure facilities.

**To Apply**

Please use the online application process to apply and tell us why you believe you are suitable for this role.

**The closing date for applications is 28th March 2021 with interviews scheduled for mid-April 2021.**